



Research on the Information Supporting System for the New Educational Mechanism Reforming in Rural Areas

Jianxiong Huang & Hongju Zhan

Research Center of China Rural Affairs, Huazhong Normal University

Wuhan 430079, Hubei, China

School of Economics and Politics & Law, Hubei University of Technology

Wuhan 430068, Hubei, China

E-mail: yuanfangcheng1978@yahoo.com.cn

Abstract

Based on the analysis of information requirements and the funds guaranteeing system reform of rural compulsory education, this paper tried to design and construct an information support system for the new network-based educational mechanism reforming in rural areas. This paper also defined the concept of this new system and its framework. A prospective forecast was also given in terms of its function and application. This paper intended to provide effective informationized managing measures for the implementation of the new educational mechanism.

Keywords: Information, New mechanism reforming, Innovation

On December 24, 2005, the State Council released the *Notice of Deepening the funds guaranteeing mechanism reform of rural compulsory education*. The implementation of the new mechanism is a significant milestone change in the history of compulsory education development in China. It solved the long disturbing problem of “insufficient investment and unclear responsibility” in rural compulsory education. It established a long term mechanism of guaranteeing rural compulsory education development and laid solid foundation for the healthy development of compulsory education. This paper tried a new research from the perspective of combination of modern information technology and the funds guaranteeing system reform of rural compulsory education to promote the functioning of the new mechanism.

1. Problems in the implementation of the new mechanism reforming and its demand analysis

1.1 Problems in the implementation of the new mechanism reforming

The problem of funds safeguard is the core problem in rural compulsory education and it influences the development of rural compulsory education. Therefore, constructing the new funds safeguard system for rural compulsory education is a project that has profound and far-ranging impact and significance. Since the 2006 reforming of the funds safeguard system for rural compulsory education, a number of measures have been taken to guarantee the implementation of the new mechanism and preliminary results have been achieved.

But according to the statistics of reporting calls on the new mechanism received by the ministry of education finance division, from January to June in 2008, there are altogether 110 reporting calls, of which 18 were in January, 34 in February, 17 in March, 12 in April, 11 in May, and 18 in June. All these reporting calls covers 23 provinces, 51 are from central China areas, 31 are from western China areas and 28 are from eastern China areas. Undoubtedly, since the spread of partial experiment of funds safeguard mechanism reforming of rural compulsory education to mid-western areas, there are bound to be different kinds of problems: problem of indefinite investment; contradiction in funds supply and demand; poor arrangement, poor management and poor monitoring of educational budget in different levels; unreasonable distribution of educational resources; the difficulty in solving the rural compulsory education debts.

First, the problem in budget planning. This problem is mainly revealed in three aspects: (1) in some schools, the number of students under the budget is inconsistent with the actual number, most often the budget number is much higher than the actual number; (2) in some schools, because of poor budgeting, there are cases that part of the budget funds were embezzled or diverted to other uses. There is a lack of unity of budget planning; (3) during the process of

budgeting, some projects are in serious lack of funds. For example, in Chongqing city, the funds for teachers training and allowance for repairs and maintenance are inadequate. After the implementation of the new mechanism, although there is a provision that 5% of the education funds should be used for teachers training, it is far from adequate. Therefore, teachers training and improving programs are difficult to operate. Allowance for repairs and maintenance is also seriously inadequate.

Second, the distempered management control system of educational funds. The process of government funding for compulsory education is only known to a few decision makers, which made effective monitoring difficult to operate. Without effective monitoring, corruption tends to occur. Under the present system, phenomena of embezzlement and corruption in the use of compulsory education funds occur now and then.

Third, difficulty in solving the debt problems in rural compulsory education. Rural compulsory debts are mainly from the loans and fund raising for the infrastructure of rural middle schools and primary schools. Furthermore, when the state government and provincial government allocate funds for the rebuilding of the dilapidated school building, they also require that the local government provide counterpart funding. But because of the financial difficulties in the local government, the counterpart funding is difficult to be collected. Therefore, debts come into being. These debts problems can not be solved under the present system. These debts not only hinder the smooth development of rural compulsory education, but may also become the inducement for financial risks and unauthorized collection of fees by educational institutions, which may ultimately affect the new compulsory education investment policy.

Fourth, the unreasonable distribution of educational resources. Because of geographical conditions and other factors, many backbone teachers flew from rural schools to urban schools. What's more, rural schools have more funding resources. Therefore, teachers in urban schools have much higher salaries than teachers in rural schools. This finally leads to the polarization between rural and urban schools, which made it difficult to realize balanced development of compulsory education.

The problems that appeared during the process of implementing the new mechanism are harmful to the healthy development of rural compulsory education. They are also the problems that need to be promptly solved in order to better construct the new mechanism.

1.2 The need for information communication in the new educational mechanism reforming

The modern age is an age of informationization. How the new mechanism adapts itself to the requirements of the informationized society is a big issue that we have to confront. Master of management Peter Deruke said, "This is the nature of knowledge: it changes fast. Today's certainty is tomorrow's absurdity." The complexity of the decision-making objects and the decision-making environment, together with the mass information brought by the rapid development of science, economy and society, demand that the construction of the new mechanism rely not only on a high-quality decision-making subject and a scientific process of decision-making, but also on the completeness and accuracy of decision-making information. It has been objectively proved that in an age of rapid scientific and technological development, it is difficult to make correct decision without the support of mass, prompt and reliable information. Only when the decision-makers obtain overall, accurate and useful information, can they make reasonable prediction of the development tendency of the new mechanism and thus make corresponding decision.

The impelling of the new mechanism reforming also requires the utilization of modern information technology. For example, the new financial management system of "separate accounts, centralized management" in rural middle and primary schools impels the reform of budgeting system in rural compulsory education schools and impels government procurement, and thus improve the funding returns. This financial management system can stop other units from charging the schools of unauthorized collecting of fees and can reduce the number of financial workers hence improve the funding returns. But if the service can not meet the needs of the new system, it may lead to low working efficiency, nonstandard use of educational funds, and lack of monitoring. Therefore, effective measures should be taken to apply computer and network technologies to the management of educational funds.

Because of the new mechanism's demand for information and the complexity and diversity of information, it is imperative that the management work of the new mechanism be informationized and web-based. It has become an urgent task to develop efficient web-based information support system for the new mechanism. It has significance practical and historical meaning to deepen the new mechanism reform and provide the new mechanism reform with information technology and informationized management measures.

2. The information supporting system for the new mechanism reform

In order to put into practice the guidelines of the Party's Sixteenth National Congress and the Third and the Fifth Plenary Session of its Sixteenth Central Committee, in order to carry out the viewpoint of scientific development, in order to strengthen the responsibility of guaranteeing rural compulsory education and make the nine-year compulsory education universal, in order to build new socialist countryside, the State Council decided to carry out and deepen the reform of funding mechanism for rural compulsory education. The new mechanism operates on the principle of

“clarifying funding responsibilities in different levels; central and local government jointly taking on the funding responsibilities; enlarging the rural education investment; raising the levels of guaranteeing education funds; carrying out the reform step by step”. The main content of the new mechanism includes: (1) free all rural students of compulsory education tuition and miscellaneous fees, offer students from poor families free textbooks and provide living allowance for boarders. (2) improve the level of funds guaranteeing for the public expenditure in rural compulsory education primary schools and middle schools. (3) establish a long-term mechanism for the maintenance and repair of the school buildings. (4) consolidate and improve the guaranteeing mechanism for teacher’s salaries.

In order to fully implement the new mechanism, modern management technology and measures are necessary. The core of the modern management technology and measures is the informationized construction of the new mechanism. Through a modern web-based and digitized system, the information supporting system for the new mechanism can help solve the problems which appear in the implementation of the new mechanism and improve the efficiency of the new mechanism.

The basic content of the information supporting system for the new mechanism mainly covers the following three aspects:

Firstly, the information supporting system adds new channels for the public to participate in the implementation of new mechanism. The information supporting system takes full advantage of the interaction modes based on information technology. It is a effective way to call on the whole society to participate in the implementation of the new mechanism. The information supporting system not only integrates the former public participating ways such as questionnaire, symposium, notice-board but also will integrate the new media such as broadcasting, cable television, telephone and internet. This will rid the new mechanism of the traditional public participation measures and make the participation measures transfer from qualitative, close, static and partial ones to quantitative, open, dynamic and whole ones, and thus promote the implementation of the new mechanism.

Secondly, the information supporting system can help enlarge the participating subject. The current policy of Transparency of Village Affairs participating subjects involves only related government departments and working staff. While the information supporting system can get the local government, educational institutions and financial departments involved in the implementation of the new mechanism. It also encourages the participation of the public, mass media, social groups and individuals.

Furthermore, the information supporting system can enrich the content of the public participation. Currently, in the process of the implementation of the new mechanism, besides the problem of insufficient content of public participation, there still exist the problems of unbalanced participating fields, involuntary participation and so on. The information supporting system can enrich the content of participation. Meanwhile, with the rapid increasing of participating channels, the information supporting system can facilitate the overall supervising of the new mechanism, guarantee the realization of government responsibilities, promote the effective management of school funds and build a new mechanism concerned, supported, participated and supervised by all the society.

Here it is necessary to define the information supporting system for the new mechanism. The so called “information supporting system for the new mechanism” is the introduction of modern information technology to the implementation of the new mechanism. It collects all the necessary information (including the government responsibilities, funds providing and demanding, educational resources distribution, educational burdens that peasants have, funds allocation, financial management, funds guaranteeing and so on) and then information digitalize them. It also uses computers, network, database technology and software’s to process and analyze all the information collected and then make decisions according to the analysis.

It must be pointed out that presently this system can only be a supplementary means for the implementation of the new mechanism. It can replace of work management personnel’s at certain levels but it can not fully replace the management and decision making activities of management personnel’s. Therefore, in this sense, we call this “the information supporting system” for the new mechanism.

3. The overall designing and technical support

When developing the information supporting system, we must consider the present situation and the future prospects of the new mechanism to construct and design an information supporting system with powerful functions and easy operation.

3.1 Principles of Designing

During the process of designing and developing the information supporting system for the new mechanism, we must always observe the following principles:

3.1.1 The principle of openness

An open system can share system resources with other systems and is easy to be upgraded. The ultimate goal of

constructing the information supporting system for the new mechanism is to break the isolation and strengthen the ties between the public and the government and related departments. We must take full advantage of the information supporting system to realize smooth information exchanging in the system and information exchanging with other systems. We must consider the compatibility of the present system and its future development, therefore, the system must be open.

3.1.2 The principle of practicability and economy

The information supporting system for the new mechanism must be practical and economic. When designing the new system, we must make it simple, convenient and efficiency. We should try our best to retrench the expenditure.

3.1.3 The principle of confidentiality

The user information and the government confidential files in the information supporting system for the new mechanism need to be kept confidential. Therefore, the confidentiality of the information supporting system is very important.

3.1.4 The principle of perfecting the system while using it

Because of the broad range of the information supporting system, it is impossible to be perfectly developed in a short time and it is not necessary to put it into use when it is perfected. We should follow the principle of perfecting the system while using it. In this way, user can be quickly familiar with the system and feedback can also be obtained to perfect the system.

3.2 Structure of the system

According to the above analysis, an overall structure of the information supporting system has been designed. In short, the whole system consists of “3 subsystems and 5 levels”.

3.2.1 Three subsystems

From the point of view of system science, the funds guaranteeing mechanism for rural compulsory education mainly consists of three key factors. They are funds, subjects and necessary controlling system. All other factors are derived from these three key factors. The information supporting system for the new mechanism is a complicated system. It is based on web technology, 3s technology, database technology, multimedia technology and other modern information technology. According to the three key factors, we divide the whole information supporting system into three subsystems. They are the subsystem of funds allotment, the subsystem of funds management and the subsystem of funds supervising. The subsystem of funds allotment covers the sources of funds. It is the primary factor of the new mechanism. The subsystem of funds management manages the activities of funds investors and users. The subsystem of funds supervising directly influences the effect of the functioning of the system.

According to the above analysis, the three subsystems are further divided in this paper. The subsystem of funds allotment is further divided into 5 secondary subsystems: budgeting, public expenditure in rural primary and middle schools, funds for construction and maintenance in rural primary and middle schools, salary guarantee for teachers in rural primary and middle schools, subsidy for students from poor families. The subsystem of funds management is further divided into 6 secondary subsystems according to the different subjects involved: central government, provincial government, municipal government, county government, schools and students. The subsystem of funds supervising is further divided into 2 secondary subsystems: supervising & inspecting and researching. Supervising and inspecting means educational institutions should coordinate the activities of government departments such as financial department, audit department, supervision department, local People’s Congress and public opinion department to establish an effective mechanism of work evaluation and supervision. The secondary subsystem of researching means that the process of the implementation of the new mechanism should be studied and researched so that proper suggestions could be made to further perfect the new mechanism.

The 3 subsystems and the secondary subsystems are interrelated and interact on each other. Together they build the information supporting system for the new mechanism. The structure of the information supporting system can be illustrated by Figure 1.

3.2.2 Five Levels

The system will be built into an open web system, consisting of 5 levels: national system, provincial system, municipal system, county system and school system. The national system refers to the new mechanism reform leading group. The provincial system, the municipal system, the county system and the school system refer to the new mechanism reform leading group formed by the government department in different government levels.

The same software and hardware equipments will be equipped in the different levels of systems. The information will be run on LAN and Internet step by step. The structure of the system network can be manifested in Figure 2.

4. Function of the Information Supporting System and its Application

The information supporting system for the new mechanism has the following practical meanings and functions:

Firstly, it can strengthen the information integration and yield the greatest returns on investment.

Information integration is the necessary result of the development of data integration. It is the result of information need. The information supporting system uses networked management to achieve the goal of co-construction and sharing information resources. It integrates the information resources and breaks the former isolation of information management. The information system can solve the present problems and shortcomings in the implementation of the new mechanism, and it is beneficial to yield the greatest returns on educational investment.

Secondly, it impels the informationized working mechanism.

The information supporting system is the important body of impelling the informationized working mechanism. It frees people of the low efficiency manual operation of information collecting, processing, storing and exploiting. It boosts the development of computerization, informationization and networking of the new mechanism.

Thirdly, it establishes an informationized assessment mechanism.

The assessment mechanism in the information supporting system is a man-machine integrated assessment system. It is significant in improving the assessment standards, perfecting the assessment measures and assessment mechanism.

Fourthly, it promotes the comprehensive reform of rural compulsory education.

The promotion of the new mechanism reform needs to extend the range of the reform, and the information supporting system provides it with the reforming platform. First of all, it impels the related subjects to change their traditional ideas, and this change is important for the new mechanism reform. Furthermore, the construction of the information supporting system demands the introduction of scientific managing ideas, and it is an overall and profound reform of the traditional working style, organization structure and management process.

It must be pointed out that the construction of the information supporting system can not be done overnight. It must be carried out step by step. The information supporting system has broad range, mass information, multi-functions and complicated system. Only by advanced information technology and only with strategic and long-term views, can it be realized. What's more, the information technology that the information supporting system is based on is also continuously developing and evolving, therefore the system needs to be continuously perfected and developed. There are some points that worth paying attention to when applying it into practice.

First of all, the information supporting system requires certain hardware investment. Secondly, it requires high quality data. The data in the information supporting system are provided by provincial and local management departments. This requires that the data provided be authoritative, reliable, perfect and efficient. Thirdly, it requires a high quality team of management and maintenance. Fourthly, it is better to choose two counties to experiment the information supporting system and then make it widespread.

Briefly, the implementation of the new mechanism reform calls for the information supporting system. The information supporting is open, flexible, practical and interactive. It will be a necessary technological basis of the funds guaranteeing mechanism for rural compulsory education.

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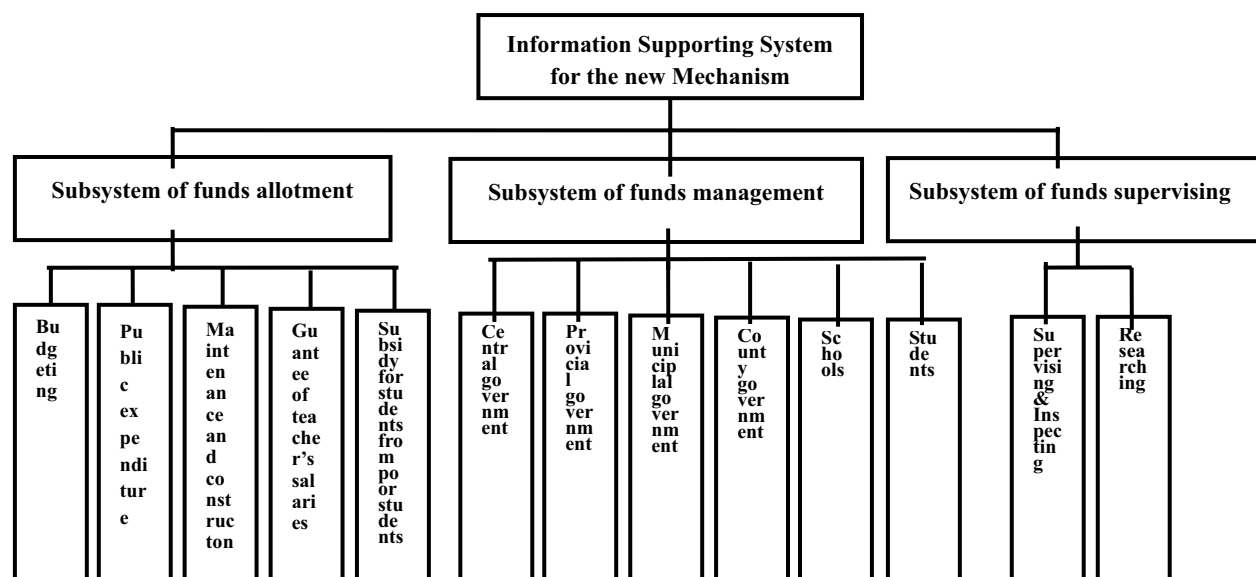


Figure 1. Structure of the Information supporting System

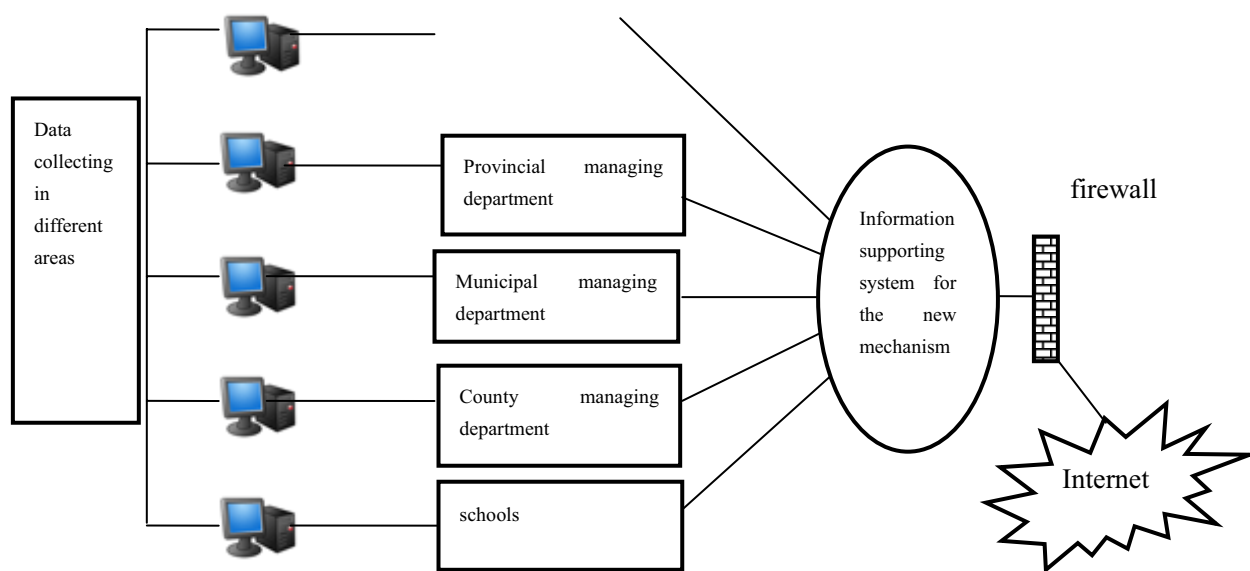


Figure 2. Five Levels of the Information Supporting System